DOCUMENT RESUME

ED 044 705 AL 002 686

AUTHOR Smith, Donald; And Others
TITLE The Pronunciation-Hearing Test Using a Hybrid Magnetic Tape System.
INSTITUTION Tokyo Univ. (Japan). Research Inst. on Logopedics and Phoniatrics.
PUB DATE 70
NOTE 3p.
JOURNAL CIT Annual Bulletin (Research Institute of Logopedics and Phoniatrics); n4 p111-3 1970

EDRS PRICE EDRS Price MF-$0.25 HC-$0.25
DESCRIPTORS *Computer Assisted Instruction, Distinctive Features, English (Second Language), *Language Tests, *Learning Difficulties, Listening Comprehension, Magnetic Tapes, Programed Instruction, *Pronunciation Instruction, Tape Recorders, *Word Lists

ABSTRACT

This report outlines the revised form of a program developed at the Research Institute of Logopedics and Phoniatrics (University of Tokoyo) for testing students' pronunciation and comprehension abilities, and discusses some refinements which have been made in the general approach. (See AL 002 685 for a description of the basic program.) Under this revised program a record is kept of the number of trials, successes and failures for each word feature considered and of the judgments passed for each word. An analysis of these records is expected to provide information on: (1) the relative difficulties of the word features used, based on the averages obtained from the experimental data, for different students; (2) the comparative difficulty of selected types of word features in certain relations, e.g., initial consonant clusters beginning in "s" and the same clusters without initial "s" (spl vs. pl); (3) the effects of interactions between word features when they are put in sequences of words. The extension of the program to include languages other than English is also discussed. (Author/FWB)

ED 044705

AL 002 686

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY

THE PRONUNCIATION - HEARING TEST USING A HYBRID MAGNETIC TAPE SYSTEM

Donald Smith, Kazuko Ito, Chizuko Sato
Haruhisa Ishida and Osamu Fujimura

In the 1969 Annual Bulletin (#3, pp. 101-109), the initial steps taken toward developing a test-training program for Japanese, involving the pronunciation and hearing of English, are described in connection with some other techniques for computerizing test-training procedures in language learning experiments. * A basic program has been written by Sue Hanauer in Fortran, and its functions and structure are described by her in this issue. ** Below we will outline the form of a revised program now under operation and discuss some refinements which have been made in the general approach since the last report.

The experiment now under way involves the use of a computer controlled hybrid magnetic tape system*** in testing and teaching students in the oral repetition of presented speech. The tasks are limited to the repetition of monosyllabic words of the form C_i V C_f, where C_i and C_f are the initial and final consonants or consonant clusters respectively, and V is the syllabic nucleus. Recall that for each cluster or syllabic nucleus, there is a corresponding word feature (WF). There are now 62 WFs for C_i, 178 for C_f, and 15 for V. The total number of monosyllabic words being tested is in the

---

* O. Fujimura, "Technological Developments for Language Learning," Annual Bulletin (Research Institute of Logopedics and Phoniatrics, University of Tokyo) No. 3, 81-110 (1969).

** S. L. Hanauer, "Computer-Assisted Instruction in the Pronunciation of Foreign Languages," Annual Bulletin (Research Institute of Logopedics and Phoniatrics, University of Tokyo) No. 4, 103-109 (1970).

*** H. Ishida, "An Audio-Digital Hybrid Magnetic Transport," Annual Bulletin (Research Institute of Logopedics and Phoniatrics, University of Tokyo) No. 3, 67-68 (1969).

order of 2500. The WFs have been subjectively rated on a six point scale in terms of relative difficulty, and on this basis, the words have each been assigned to one of six different word levels.

A list of test words was ordered as described by Hanauer* and then recorded on the hybrid magnetic tape by a native speaker of American English. The student is presented words one by one through a loud speaker, and he repeats each word as best he can. A native speaker with no special training judges the accuracy of the response by typing in an O for OK or an N for No or asks for a repeat by pressing the R key. With each judgement the tape is advanced and either plays the next word or skips it in a high speed mode, following the algorithm given in the previous report. ** The present algorithm is slightly different though similar to that of Hanauer's, and the program is written in the PDP Basic Assembler Language. For each run, a record is kept of the number of trials, successes, and failures for each WF and the judgements passed for each word.

The results of the tests we are running will be analyzed using a program designed to display the following kinds of information.

A. The relative difficulties of the word features, based on the averages obtained from the experimental data, for different students.

B. The comparative difficulties of selected types of word features in certain relations, e. g. initial clusters beginning in [s] and the same clusters without initial [s] (spl - vs. pl -, etc.).

C. The effects of interactions between certain WFs when they are put in sequences in words. For example, the same cluster may be more difficult when it is followed by a front vowel than when it is followed by a back vowel, even if the levels of difficulty of the two vowels are the same.

From the tabulation obtained in A. , we will have an objective ranking of the consonant clusters and syllabic nuclei of English monosyllabic words in terms of their relative difficulty for Japanese speakers of different background groups. This will be of immediate value in reassigning WF level values to

---

* Opt. cit.

** Fujimura, opt. cit.

the WFs, this time based on empirical data rather than on subjective judgements. Since students at various levels of proficiency will be involved in the experiment, we will also be able to obtain information of the order in which various WFs are mastered and investigate to see whether the mastery of one WF does not correlate with the mastery of a set of WFs. This information will ultimately lead to the resolution of the present WFs into configurations of more elemental distinctive features. It, of course, still remains open to question whether these distinctive features will be close to those proposed for a phonology of English, since what are being investigated are the properties of the sort of phonological system of English developed by non-native speakers in learning English, and it may represent modifications of some other phonological structure rather than the natural sound pattern of English. In this respect it will eventually be of interest to run similar experimental programs for students of English from other language backgrounds. Similarly, it will be of interest to run similar experiments for Japanese students learning other languages. A similar test with the use of a comparable word list and graded list of WF's for French is in preparation by Miss Odette Margot from Institut Charles V, Sorbonne.

At present, with such a long list of words being tested, a typical test run will take from one and a half to two hours to complete. After the initial tests, it will be possible to greatly reduce the time required through a combination of more sophisticated logistic devices. In developing these devices, the data displays of the B and C forms will be of use, since one of the main time savers will be in the development of a set of implicational rules, which will have the effect of reducing the number of word features to be tested. For example, it appears now that the ability to produce a final [z] (usually the plural morpheme) may imply that any consonant cluster which can be repeated correctly, can also be repeated correctly with a final [z] attached. The program for reorganizing the data in format B, will be of immediate use in displaying these relations. Also, note that the difficulty to be attributed to a particular word feature (e. g. [r] in a final cluster) often depends significantly on the particular context (e. g. the vowel preceding [r]).